STATE OF CALIFORNIA

Department of Transportation Specification

Red Primer, High Solids Phenolic Type (Formula PB-201B)

SCOPE

This specification cover a pre-mixed waterborne paint formulated for use as a prime coat on properly prepared metal surfaces.

This coating is intended for spray application. Limited application can be made by brushing and rolling.

REQUIREMENTS

General:

This specification is intended to specify paint that will meet service requirements for bridge construction and maintenance. All properties listed shall be maintained for a minimum of one year after acceptance. If the vendor is making this paint for the first time, the Transportation Laboratory in Sacramento must be consulted.

Materials:

The raw materials for use in the paint formula shall conform to the specifications designated or paint material code number hereinafter specified.

QUALITY ASSURANCE

The inspection, sampling, testing, packaging and marking of the coating shall comply with State of California Specification 8010-XXX-99, *Coatings, Protective, Quality Assurance Requirements.*

Unless otherwise permitted by the Maintenance Engineer, paint shall be sampled at the place of manufacture and application will not be permitted until the paint has been approved by the Maintenance Engineer. Raw materials and copies of batch records used in the manufacture of the paint shall be submitted as requested by the Maintenance Engineer.

All tests will be conducted in accordance with the latest test methods of the American Society for Testing and Materials, Federal Test Method Standard No. 141, and methods in use by the Transportation Laboratory.

Patents:
The contractor shall assume all costs arising from the use of patented materials, equipment, devices, or processes used on or incorporated in the work, and agrees to indemnify and save harmless the State of California, and its duly authorized representatives from all suits at law or action of every nature for, or on account of, the use of any patented materials, equipment, devices, or processes.

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Red Primer, High Solids Phenolic Type (Formula PB-201B)

Description:

This specification covers a red, ready-mixed, air-drying, high solids, corrosion resistant, phenolic resin/tung oil primer. This coating is intended for spray application to blast-cleaned steel surfaces exposed to the air. Limited application can be made by brushing or rolling.

Composition

Component		Weight percent	(LB/100 gallons)
PIGMENT			
Magnesium Silicate	(1)	16.60	194
Zinc Phosphate	(2)	14.63	171
Red Iron Oxide	(3)	16.25	190
Silica	(4)	0.26	3
VEHICLE			
Phenolic Resin/Tung Oil Varnish	(5)	43.80	512
Aliphatic Thinner, TT-T-291F, Type I		7.01	82
Xylene, ASTM D846		0.26	3
Zirconium Drier, ASTM D600, Class A	(6%)	0.42	4.9
Cobalt Drier, ASTM D600, Class B	(6%)	0.21	2.5
Calcium Drier, ASTM D600, Class B	(5%)	0.16	1.9
Anti-skinning Agent, Oxime Type		0.40	4.7

Characteristics:

Density, grams per milliliter, ASTM D-1475	1.39 to 1.41
Pigment by weight of paint, percent, ASTM D-2371	47.0 to 49.0
Nonvolatile content, weight percent, ASTM D-2369, Procedure B	80.0 to 82.5
Nonvolatile content, volume percent, ASTM D-2697	66.5 to 68.0
Fineness of grind, Hegman, ASTM D-1210	4 to 5
Consistency, ASTM D-562, grams	170 to 230
(Equivalent KU)	(76 to 86)
Drying time, 75 μm wet film, ASTM D-1640	
set to touch, hours	2.5 max.
dry-hard, hours	8 max.

Color to essentially match Color Chip No. 197 on file at the Transportation Laboratory.

(1) Magnesium Silicate, platey shape, specific gravity 2.7 ± 0.1, oil absorption* 50 ± 3, pH 8.8 ± .3, Hegman fineness +6.0, 100% passing 45 μm mesh screen, CaO content 0.5% max., water soluble matter 1.0% max.

(2) Essentially $Zn_3(PO_4)_2 \cdot 2H_2O$, specific gravity 3.4 ± 0.1, oil absorption* 20 ± 3, average particle size less than 10 μm. Water soluble matter less than 0.2%.

(3) Synthetic iron oxide, spheroidal particle shape, Fe_2O_3 98% minimum, oil absorption* 20 ± 3, specific gravity 5.2 ± 0.1, 99.9% passing 45 μm mesh screen. Water soluble matter 0.15% maximum, easy dispersible type recommended.

(4) Precipitated hydrophobic silica, surface area N_2 B.E.T. 120 ± 15 m^2/g, mean particle diameter 3 μm, drying loss at 150°C 1-2%, ignition loss (2 hours at 1000°C) 5-6%, SiO2 content 98% minimum based on substance ignited for two hours at 1000°C.

(5) Phenolic resin/tung oil varnish shall be a 75% non-volatile solution composed of the following:

Component	**♣♣Weight percent of varnish**	**(LB/100 gallons of finished paint)**
Georgia Pacific CK-2500 Resin	24.41	125
Aliphatic Thinner TT-T-291F, Type I	21.09	108
Xylene ASTM D846	3.71	19
Tung Oil ASTM D12	50.78	260

Dissolve CK-2500 in xylene and aliphatic thinner. Add tung oil slowly while stirring.

***** Oil absorption values determined according to ASTM D-281.

♣♣ Varnish comprises 43.80 percent of the paint by weight.